In re Application of PATENT
Abdelhamid Sayari Attorney Docket No.: OSLER1120

Application No.: 10/539,225 Filed: December 7, 2005

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Amendments to the Claims:

Please cancel claims 1-3, 6-11, 13-16 and 20-25 without prejudice or disclaimer.

Please add new claims 26-32.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-25 (Canceled)

- 26. (New) A water-tolerant, regenerable adsorbent for use in an acid gas dry scrubbing process, the adsorbent comprising mesoporous silica or organosilica, wherein amine-containing molecules are dispersed within a hydrophobic layer on a surface of the mesoporous silica or organosilica, and wherein the adsorbent has a carbon dioxide adsorption capacity of at least 11.70 cc/g at standard temperature and pressure.
- 27. (New) The adsorbent according to claim 26, wherein the acid gas is carbon dioxide.
- 28. (New) A method of dry scrubbing comprising the step of contacting a gaseous stream containing an acid gas to be removed with water-tolerant, regenerable adsorbent comprising mesoporous silica or organosilica, wherein amine-containing molecules are dispersed within a hydrophobic layer on the surface of the mesoporous silica or organosilica.
- 29. (New) A system for removal of an acid gas from a gaseous stream, comprising:
 - (a) two or more sorbent beds comprising a water-tolerant, regenerable adsorbent comprising mesoporous silica or organosilica, wherein amine-containing molecules are dispersed within a hydrophobic layer on a surface of the mesoporous silica or

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organosilica, and wherein the adsorbent has a carbon dioxide adsorption capacity of at least 11.70 cc/g at standard temperature and pressure;

- (b) valve means for controlling gas flow through the sorbent beds, and;
- (c) pump means for controlling gas pressure in the system.
- 30. (New) The system of claim 29, wherein the acid gas is carbon dioxide.
- (New) The system of claim 29, wherein the adsorbent is pelletized with a binder that is an inert secondary material.
- (New) The system of claim 29, wherein the adsorbent is pelletized with a binder that is an active secondary material.